

ABSTRACT

The present invention stably provides a high-strength hot-dip galvanized steel sheet having a high tensile strength and no non-plated portions and being excellent in workability and surface properties even when the employed equipment has only a reduction annealing furnace and a steel sheet containing relatively large amounts of Si, Mn and Al that are regarded as likely to cause non-plated portions is used as the substrate. The present invention: secures good plating performance even when the steel sheet contains Si, Mn and Al by adding Ni to a steel sheet, thus forming oxides at some portions in the steel sheet surface layer, and resultantly suppressing the surface incrassation of Si, Mn and Al at the portions where oxides are not formed; enhances the effect of Ni and accelerates the formation of oxides by further adding Mo, Cu and Sn; and moreover, in the case of a TRIP steel sheet, secures austenite by determining the ranges of Si and Al strictly, avoiding the deterioration of plating performance caused by the addition of Ni, and further adding Mo in a balanced manner.

In addition, the present invention, in a TRIP steel sheet, improves press formability by regulating a retained austenite ratio and accelerates the formation of oxides by regulating a hydrogen concentration and a dew point in annealing before plating.